Check List the journal of biodiversity data
ANNOTATED LIST OF SPECIES

Faunistic notes on the noctuoid moths (Lepidoptera, Noctuoidea) in the Lucchese Apennines of Tuscany, Italy

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Abstract. Insects have been used as indicators of the state of environmental quality due to their ecological characteristics and role at many different trophic levels. In parcticular, moths are used as indicators to monitor the recovery of vegetation following environmental stress or as early warnings to measure the effects of environmental change at a local scale. For this type of evaluation, timed series of catch data from the same areas are of fundamental importance as reference data. Here we report the results of a year of sampling in areas of the Lucchese Apennines in Tuscany, Italy. These sites were previously sampled in the late 1970s. The results of this annotated list of species show a decrease in the number of species present in the study area that is not compensated by new records not sampled in the past.

Key words. Checklist, climate change, indicator species

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INTRODUCTION

Climate change is causing dramatic alterations in the distribution of species (Pearson and Dawson 2003) and, in the most extreme cases, major losses of biodiversity (Urban 2015; Waller et al. 2017). The progressive warming of the biosphere has negative effects, especially on insects (Masson-Delmotte et al. 2021). As predominantly ectothermic organisms, insects are parcticularly sensitive to changes in humidity and temperature (Halsch et al. 2021). It has been estimated that insect biomass on a global scale is decreasing at a rate of 2.5% per year (Hallmann et al. 2017; Sánchez-Bayo and Wyckhuys 2019). Insects can respond to such phenomena in a wide variety of forms. As noted by García-Robledo et al. (2016) climate variations can alter insect physiology and behaviors, with cascading effects on life cycles, reproduction, and population dynamics. Many studies (e.g., Dirzo et al. 2014) have highlighted how climate change is affecting aerial, freshwater, and terrestrial insects, including both diurnal and nocturnal groups. For moths, there is an alarming decrease in population abundance and species diversity (Conrad et al. 2006; Mattila et al. 2006; Dar and Jamal 2021). In this arcticle we present the results of a resampling of the lepidopteran fauna of two areas already subjected to investigation as of 1979. The aim of this work is to provide an updated checklist of the Noctuoidea species present in the area under study and to highlight the great role that archived entomological collections can play as an environmental memory of a specific territory (Johnson et al. 2011). Indeed, the data set taken as reference for this study comes from a lepidopterological collection that contains specimens, sampled at the end of the 80s, from two specific sites of the Lucchese Apennines: Bagni di Lucca and Mt. Prato Fiorito (Marini and Trentini, 1986). These specimens are part of the Marini entomological collection, stored in the Department of Biological, Geological and Environmental Sciences of the University of Bologna, and now constitute an important basis for comparison to assess any changes that may have occurred in the lepidopterofauna of those territories over the last 45 years.

Noctuoidea are the largest superfamily of Lepidoptera with over 42,000 described species (Van Nieukerken et al. 2011; Zahiri et al. 2011) belonging to approximately 1,100 genera. About 800 species can be found in Italy, ranging between alpine, orophilous and stenomediterranean groups, respectively, found in Alpine, Apennine, and coastal areas. Over time, Lepidoptera from the Lucchese Apennines have received sporadic attention by both local and foreign entomologists. The only specific work on the Noctuoidea present in this area is Marini and Trentini (1986). Other noteworthy works have concerned other groups of lepidopterans present in the Tuscan area (Scalercio 1999; Nappini and Dapporto 2009), while more general

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studies have been conducted to provide descriptive information on the insect communities present (e.g. Zilli 2005; Parenzan and Porcelli 2006, 2005–006). These studies, which report the species present in a vast territory, are of little use when it comes to making considerations at a local scale. In fact, it is increasingly evident how important it is to be able to use continuous time series of data for an assessment of possible changes in lepidopteran communities. Considering all these aspects, this work can be considered innovative both in terms of the group examined and the research methodology used.

STUDY AREA

The study area (Figure 1) is located in the province of Lucca, in the southern part of the region of Garfagnana in Tuscany, Italy. The sampling sites are in the area between the Northeastern Tuscan-Emilian Apennine ridge (1400–2050 m a.s.l.) and the confluence of the Lima and Serchio rivers (catchment area of approximately 1412 km^2), where rises Mount Prato Fiorito (1297 m a.s.l.). The predominantly limestone relief has two distinct slopes; the north-facing slope is largely covered by a mesophilic grassland rich in perennial species with showy blooms throughout most of the spring-summer season. The southern slope, more arid and rocky, is characterized by a discontinuous and less homogenous vegetation cover, with a prevalence of more thermophilic and xeric species (Figure 1).

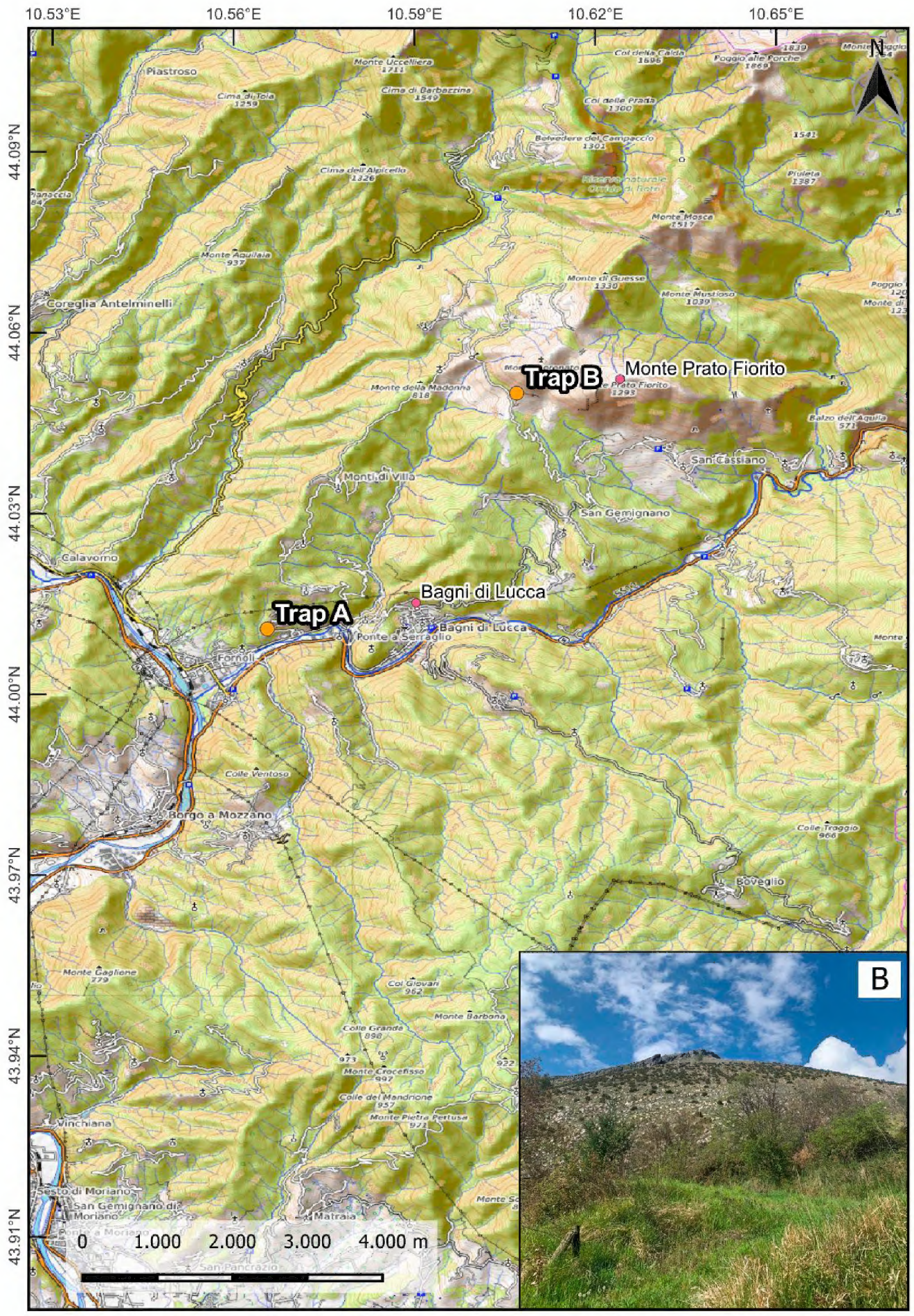

Figure 1. The study area. **A.** The location of the study area in Lucca, Tuscany, Italy. The two traps are highlighted as Trap A and **B. B.** Habitat on the southern slope of Mount Prato Fiorito.

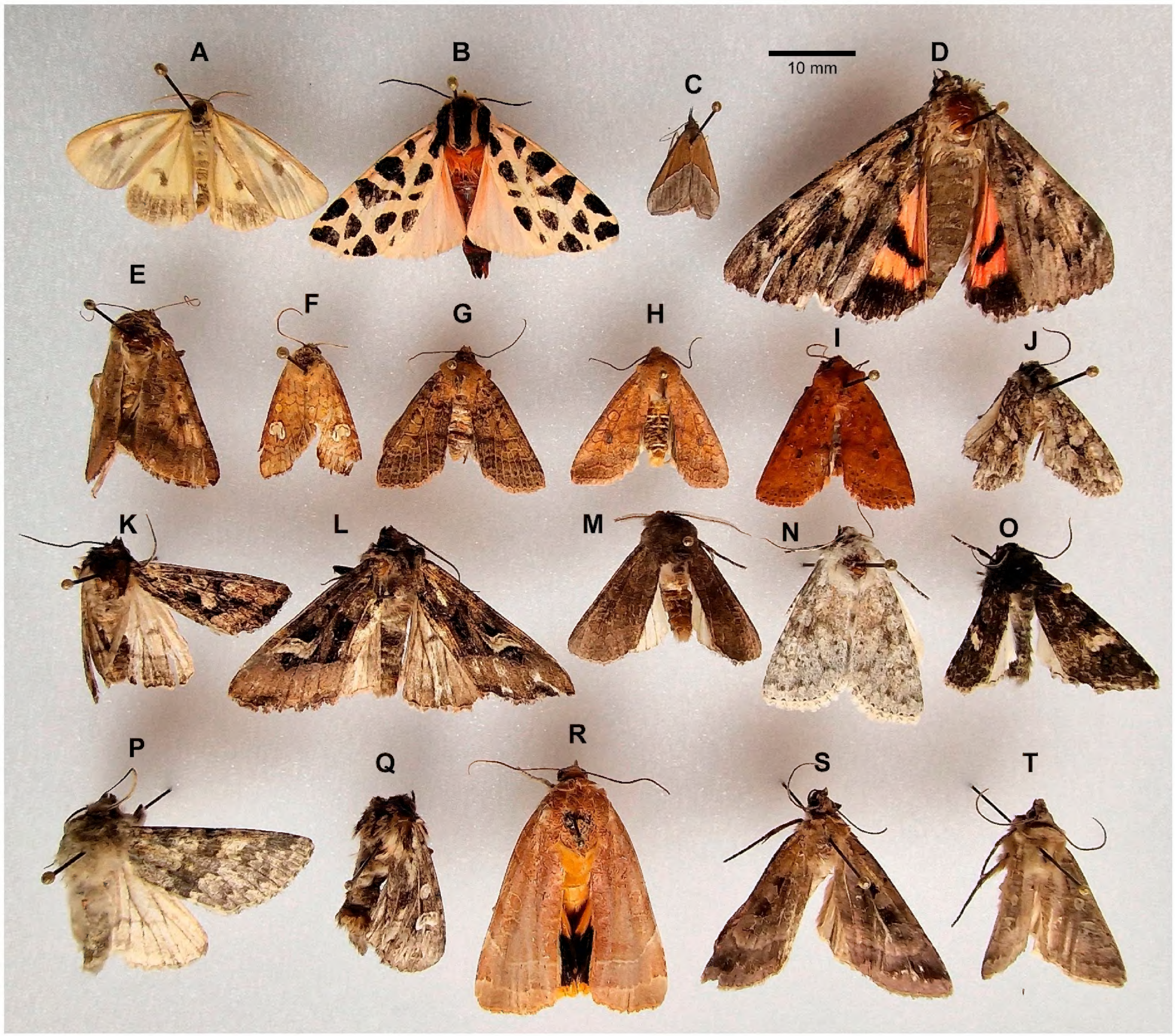

Figure 2. Collected specimens. **A.** *Diacrisia sannio* (Linnaeus, 1758). **B.** *Cymbalophora pudica* (Esper, 1785). **C** *Hypena lividalis* (Hubner, 1796). **D.** *Catocala conjuncta* (Esper, 1787). **E.** *Helicoverpa armigera* (Hubner, 1808). **F.** *Amphipoea oculea* (Linnaeus, 1761). **G.** *Agrochola pistacinoides* (d'Aubuisson, 1867). **H.** *Agrochola circellaris* (Hufnagel, 1766). **I** *Conistra rubiginea* (Denis & Schiffermüller, 1775). **J.** *Dryobotodes eremita* (Fabricius, 1775). **K.** *Dryobotodes tenebrosa* (Esper, 1789). **L.** *Trigonophora flammea* (Esper, 1785). **M.** *Aporophila lutulenta* (Denis & Schiffermüller, 1775). **N.** *Aporophila canescens* (Duponchel,1826). **O**. *Polymixis serpentina* (Treitschke, 1825). **P.** *Polymixis rufocincta* (Geyer, 1828). **Q.** *Pachetra sagittigera* (Hufnagel, 1766). **R.** *Noctua tirrenica* (Biebinger, Speidel & Hanigk, 1983). **S.** *Xestia stigmatica* (Hubner, 1813). **T.** *Xestia xanthographa* (Denis & Schiffermüller, 1775).

METHODS

We collected moths from May 2022 to April 2023, once or twice a month, avoiding full moon periods. We used two trap types: the first positioned on the southern slope of Mount Prato Fiorito (850 m a.s.l.), the second one further downstream, on a hill overlooking the entire built-up area of Bagni di Lucca (200 m a.s.l.). We let the traps operate all night long, no matter what the weather conditions. The specimens were caught using light traps equipped with 160 W mixed light lamps (Osram Lamp, Germany). All specimens were deposited in the Entomological Collection of the Department of Biological, Geological and Environmental Sciences of the University of Bologna (Italy). The taxonomical identification is based on morphological features (Figures 2, 3). Systematics and nomenclature follow the recent catalogue of Noctuoidea proposed by Van Nieukerken et al. (2011). The identification of the specimens is largely based on Fibiger (1990), Fibiger (1993), Fibiger (1997), and Hacker et al. (2002). The general distribution is taken from Forster and Wohlfahrt (1980), Ahola and Silvonen (2005), and Ahola and Silvonen (2011); the chorotype is according to the categories proposed by Vigna-Taglianti et al. (1999), Vigna-Taglianti et al. (1993), and Parenzan (1994).

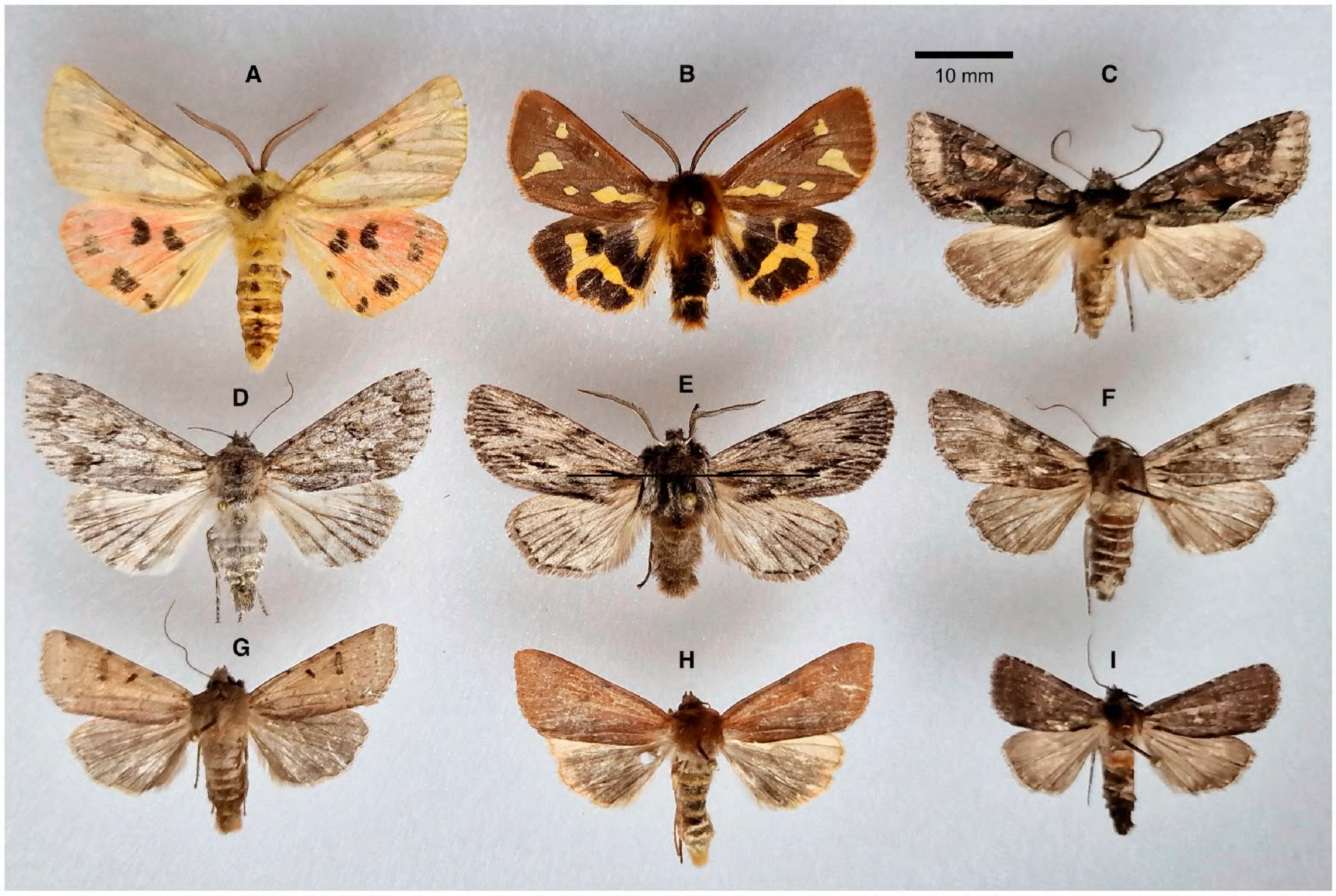

Figure 3. Collected specimens. **A.** *Rhyparia purpurata* (Linnaeus, 1758). **B.** *Arctia testudinaria* (Geoffroy, 1785). **C** *Allophyes oxyacanthae* (Linnaeus, 1758). **D.** *Acronicta aceris* (Linnaeus, 1758). **E.** *Asteroscopus sphinx* (Hufnagel, 1766). **F.** *Apamea sordens* (Hufnagel, 1766). **G.** *Agrochola lychnidis* (Denis & Schiffermüller, 1775). **H.** *Agrochola helvola* (Linnaeus, 1758). **I.** *Lycophotia erythrina* (Herrich-Schaffer, 1852).

RESULTS

Abrostola triplasia (Linnaeus, 1758)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., TRI00A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across Europe and temperate Asia (Italy: N, C, S; abundant). Chorotype: C Asiatic–European.

Acronicta aceris (Linnaeus, 1758)

Figure 3D

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 2 adult, sex indet., ACE00B 0622, ACE001B 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across Europe and to C Asia (Italy: N, C, S; scarce). Chorotype: C Asiatic–European–Mediterranean.

Acronicta alni (Linnaeus, 1767)

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., AL00B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain to Japan. (Italy: N, C, S; rare). Chorotype: Asiatic–European.

Acronicta euphorbiae (Denis & Schiffermüller, 1775)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.VIII.2022, 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., EU00A 0822, EU00A 0922.

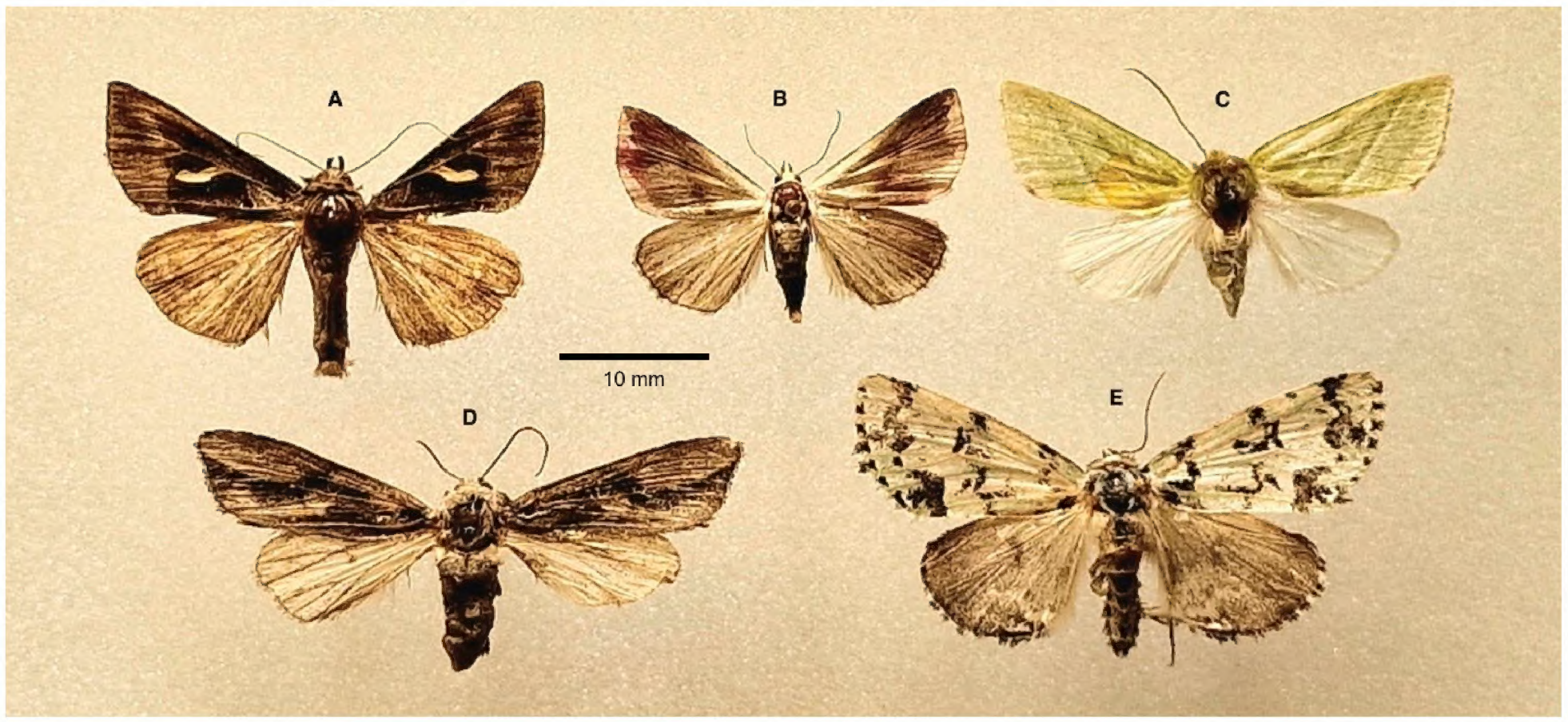

Figure 4. Collected specimens. **A.** *Macdunnoughia confusa* (Stephens, 1850). **B.** *Eublemma purpurina* (Denis & Schiffermüller, 1775). **C** *Pseudoips prasinana* (Linnaeus, 1758) **D.** *Egira conspicillaris* (Linnaeus, 1758). **E.** *Moma alpium* (Osbeck, 1778).

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco through Europe and temperate Asia to China. (Italy: N, C, S; widespread). Chorotype: Asiatic–European–Mediterranean.

***Agrochola circellaris* (Hufnagel, 1766)**
Figure 2H

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CIR00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Large parts of Europe and W Asia. (Italy: N, C, localized in S). Chorotype: C Asiatic–European.

***Agrochola haematidea* (Duponchel, 1827)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.X.2022; M. Cicero leg.; light trap; 3 adult, sex indet., HAE00A 1022, HAE01A 1022, HAE02A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across SW Europe to Great Britain, France, and Italy. (Italy: C and Sardinia; rare). Chorotype: W Mediterranean.

***Agrochola helvola* (Linnaeus, 1758)**
Figure 3H

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., HE00A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe and in parts of temperate Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European.

***Agrochola lota* (Clerck, 1759)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.XI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LO00A 1122.

Identification. Individuals were identified by the patterns on the wings.

Distribution. The Maghreb across most of Europe and further across temperate Asia to the Altai. (Italy: N, C, localized in S). Chorotype: C Asiatic–European.

***Agrochola lychnidis* (Denis & Schiffermüller, 1775)**
Figure 3G

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.XI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LO00A 1122 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.XI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LO00B 1122.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across Europe (missing in N Europe) to Asia Minor. (Italy: N, C, S; widespread). Chorotype: European–Mediterranean.

***Agrochola pistacinoides* (d'Aubuisson, 1867)**
Figure 2G

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 15.X.2022, 24.X.2022; M. Cicero leg.; light trap; 5 adult, sex indet., PI00A 0922, PI00A 1022, PI00A 241022, PI02A 241022, PI02A 241022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022, 24.X.2022; M. Cicero leg.; light trap; 3 adult, sex indet., PI00B 1022, PI00B 241022, PI01B 241022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in S Europe. (Italy: N, C, S, abundant). Chorotype: S European.

***Agrotis bigramma* (Esper, 1790)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022, 24.X.2022; M. Cicero leg.; light trap; 3 adult, sex indet., BI00B 1022, BI00B 0922, BI01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across S Europe and locally in C Europe to parts of W Asia (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Agrotis cinerea* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 2 adult, sex indet., CIN00A 0522, CIN01A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco and Europe to the Urals, parts of W Asia. (Italy: N, C, localized in S). Chorotype: C Asiatic–European–Mediterranean.

***Agrotis exclamationis* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022, 19.VIII.2022; M. Cicero leg.; light trap; 2 adult, sex indet., EXC00A 0522, EXC00A 0822 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., EXC00B 0822.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to temperate Asia (Italy: N, C, S; widespread). Chorotype: Holarctic.

***Agrotis puta* (Hubner, 1803)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 3 adult, sex indet., PU00B 0423, PU01B 0423, PU02B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe, N Africa, and parts of Asia. It is often common in sandy regions (e.g. Atlantic coast) or S Alps. (Italy: N, C, S; common). Chorotype: C Asiatic–Mediterranean.

***Agrotis segetum* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SEG00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widely distributed in the Palaearctic Region except for northernmost landscapes. (Italy: N, C, S; widespread). Chorotype: Holarctic, Afro-Indian.

***Agrotis trux* (Hubner, 1824)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., TRU00A 1022, TRU01A 1022, TRU02A 1022, TRU03A 1022 • Bagni di Lucca;

44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; 5 adult, sex indet., TRU00B 1022, TRU01B 1022, TRU02B 1022, TRU03B 1022, TRU04B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Canary Islands across N Africa and S Europe to Asia. (Italy: N, C, S; localized diffusion). Chorotype: C Asiatic–Mediterranean.

***Allophyes oxyacanthae* (Linnaeus, 1758)**
Figure 3C

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022, 24.X.2022; M. Cicero leg.; light trap; 2 adult, sex indet., OXY00A 1022, OXY00A 241022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Most of Europe. In Asia, only in the Middle East (Italy: N; scarce). Chorotype: Asiatic–European.

***Ammoconia caecimacula* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CAECI00A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe and W Asia. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Amphipoea oculea* (Linnaeus, 1761)**
Figure 2F

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., OCU00B 0722.

Identification. Individuals were identified by the patterns on the wings.

Distribution. common in Europe (Italy: N; scarce). Chorotype: European.

***Amphipyra pyramidea* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., PYRA00A 0922, PYRA01A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., PYRA00B 0922, PYRA01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across Europe and parts of Asia to Japan (Italy: N, C, S; abundant). Chorotype: Asiatic–European.

***Antitype chi* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CHI00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe and temperate Asia to the Pacific. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Apamea illyria* (Freyer, 1846)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., ILLY00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across Europe and Asia Minor. (Italy: N, S; localized diffusion). Chorotype: Asiatic–European.

***Apamea monoglypha* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., MONO00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread and common in Europe and temperate Asia to the Altai. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Apamea sordens* (Hufnagel, 1766)**
Figure 3F

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022, 25.VI.2022, 24.IX.2022; M. Cicero leg.; light trap; 12 adult, sex indet., SOR00A 0522, SOR01A 0522, SOR00A 0622, SOR00A 0922, SOR01A 0922, SOR02A 0922, SOR03A 0922, SOR04A 0922, SOR05A 0922, SOR06A 0922, SOR07A 0922, SOR08A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Large parts of Europe and Asia, including Japan. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Aporophyla canescens* (Duponchel, 1826)**
Figure 2N

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CAN00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in S Europe. (Italy: C, S; widespread). Chorotype: Mediterranean.

***Aporophyla lutulenta* (Denis & Schiffermüller, 1775)**
Figure 2M

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LUT00A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LUT00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. locally in Southern and Central Europe. (Italy: N, C, S; widespread). Chorotype: S European

***Aporophyla nigra* (Haworth, 1809)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., NIG00A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., NIG00B 1022, NIG01B 1022, NIG02B 1022, NIG03B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa and S Europe. (Italy: C, S; scarce in the North). Chorotype: Mediterranean.

***Arctia testudinaria* (Geoffroy, 1785)**
Figure 3B

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 6.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., TESTU00A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain through S and C France and S Switzerland as far as NE and S Italy (Italy: N, C; S; widespread). Chorotype: Paleotropical.

***Arctia villica* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 2 adult, sex indet., VILLI00A 0622, VILLI01A 0622 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 22.V.2022; M. Cicero leg.; light trap; 3 adult, sex indet., VILLI00B 0522, VILLI01B 0522, VILLI02B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to the Middle East (Italy: N, C; S; widespread). Chorotype: Turano–Mediterranean.

***Arctornis l-nigrum* (Müller, 1764)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LNIG00B 0822.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Iberian Peninsula across large parts of Europe to East Asia. (Italy: N, C; localized in S). Chorotype: Asiatic–European.

***Asteroscopus sphinx* (Hufnagel, 1766)**
Figure 3E

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 17.XI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SPH00A 1122.

Identification. Individuals were identified by the patterns on the wings.

Distribution. the Iberian Peninsula across large parts of Europe to East Asia. (Italy: N, C; localized diffusion). Chorotype: Asiatic–European.

***Athetis hospes* (Freyer, 1831)**

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., HOS00B 0822.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread across Europe, from Spain to Turkey. (Italy: N, C, S; widespread). Chorotype: European.

***Axylia putris* (Linnaeus, 1761)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022; M. Cicero leg.; light trap; 3 adult, sex indet., PUTRI00A 0522, PUTRI01A 0522, PUTRI02A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 19.VIII.2022, 24.IX.2022, 29.IV.2023; M. Cicero leg.; light trap; 5 adult, sex indet., PUTRI00B 0522, PUTRI01B 0022, PUTRI02B 0922, PUTRI03B 0922, PUTRI04B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across large parts of Europe and Asia to Japan. (Italy: N, C, S; widespread). Chorotype: Palearctic.

***Calliteara pudibunda* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 22.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PUDIB00B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to Central Asia, except in the most regions of Scandinavia (Italy: N, C; S; widespread). Chorotype: Asiatic–European.

***Callopistria juventina* (Stoll, 1782)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., JUV00A 0622 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 2 adult, sex indet., JUV00B 0622, JUV 01B 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across S and parts of C Europe and temperate Asia to Japan. (Italy: N, C, S; abundant). Chorotype: C Asiatic–European–Mediterranean.

***Calocasia coryli* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CORY00A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Most of Europe and temperate Asia to Lake Baikal. Italy: N, C, S; abundant). Chorotype: Asiatic–European.

***Calophasia lunula* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LUN00A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across Europe and temperate Asia to the Amur (Italy: N, C, S; abundant). Chorotype: C Asiatic–European.

***Catocala conjuncta* (Esper, 1787)**
Figure 2D

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., CONIU00B 0922, CONIU01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Around the Mediterranean: N Africa, Asia Minor, Iberian Peninsula, S France, Italy, Greece, Albania, Macedonia and SW Bulgaria (Italy: N, C, S; abundant). Chorotype: Mediterranean.

***Catocala promissa* (Denis & Schiffermüller, 1775)**

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.VIII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PROMI00A 0822.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across S and C Europe to S Russia and W Asia (Italy: N, C, S; abundant). Chorotype: C Asiatic–European–Mediterranean

***Charanyca trigrammica* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., TRIG00A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 22.V.2022, 29.IV.2023; M. Cicero leg.; light trap; 7 adult, sex indet., TRIG00B 0522, TRIG00B 220522, TRIG00B 0423, TRIG01B 0423, TRIG02B 0423, TRIG03B 0423, TRIG04B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. C Europe and parts of SW Asia. (Italy: N, C, S; widespread). Chorotype: Turano–European.

***Chloantha hyperici* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022, 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., HYP00A 0522, HYP00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Common in S Europe. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Conisania luteago* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LUTE00A 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across S and C Europe to W Asia (Italy: N, C, S; widespread). Chorotype: Turano–European–Mediterranean.

***Conistra rubiginea* (Denis & Schiffermüller, 1775)**
Figure 2I

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022, 22.V.2022, 15.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., RUBI00A 0522, RUBI00A 220522, RUBI00A 1022, RUBI01A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., RUBI00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to Turkey. (Italy: N, C, S, abundant). Chorotype: Mediterranean.

***Conistra vaccinii* (Linnaeus, 1761)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., VAC00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to Asia. (Italy: N, C, localized in S). Chorotype: Asiatic–European.

***Craniophora ligustri* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022, 5.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., LIGU00A 0522, LIGU00A 0922, LIGU01A 0922, LIGU02A 0922, LIGU03A

0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., LIGU00B 0522, LIGU00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to temperate Asia. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Cybosia mesomella* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 20.VII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., MESO00B 0722.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe, but not in the S Iberian Peninsula, SouthSern Italy, and S Greece (Italy: N, C, localized in S). Chorotype: Sibero-European.

***Cymbalophora pudica* (Esper, 1785)**
Figure 2B

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., PUD00A 0922, PUD01A 0922, PUD02A 0922, PUD03A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet.,PUD00B 0922, PUD01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across S Europe. (Italy: N, C, S with localized diffusion). Chorotype: Mediterranean.

***Deltote pygarga* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PYG00B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe and temperate Asia east to Korea. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Diachrysia chrysitis* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022; M. Cicero leg.; light trap; 2 adult, sex indet., CHRY00B 0522, CHRY01B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to E Asia (Italy: N, C, S; abundant). Chorotype: Asiatic–European.

***Diacrisia sannio* (Linnaeus, 1758)**
Figure 2A

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SAN00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widely distributed in Europe (except in the S) and Asia (Italy: N, C, localized in S). Chorotype: C Asiatic–European.

***Diaphora mendica* (Clerck, 1759)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 3 adult, sex indet., MEN00B 0423, MEN01B 0423, MEN02B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe (except S Spain and Arctic Scandinavia) and temperate Asia. (Italy: N, C; localized in S). Chorotype: C Asiatic–European.

***Diloba caeruleocephala* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CAER00A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe and common in the Mediterranean area. (Italy: N, C, S; widespread). Chorotype: European–Mediterranean.

***Drymonia ruficornis* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., RUFI00A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. North Africa across Europe to the Middle East. Not in C and N Scandinavia and highly localized in the Mediterranean region. (Italy: N, C; S; widespread). Chorotype: C Asiatic–European– Mediterranean.

***Dryobotodes eremita* (Fabricius, 1775)**
Figure 2J

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., ERE00A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in S Europe, NW Africa, across S and C Europe to W Asia. (Italy: N, C, S; abundant). Chorotype: Palearctic.

***Dryobotodes tenebrosa* (Esper, 1789)**
Figure 2K

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., TENE00A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across Southern Europe (the entire Mediterranean area) to Asia Minor. (Italy: N, C, S; abundant). Chorotype: C Asiatic–Mediterranean.

***Dysauxes famula* (Freyer, 1836)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 5 adult, sex indet., FAMU00A 0922, FAMU01A 0922, FAMU02A 0922, FAMU03A 0922, FAMU04A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., FAMU00B 0822.

Identification. Individuals were identified by the patterns on the wings.

Distribution. SE France across Italy and the Balkans to the Asian Far East (Italy: C; S; scarce). Chorotype: C Asiatic–European–Mediterranean.

***Dysgonia algira* (Linnaeus, 1767)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022, 5.IX.2022; M. Cicero leg.; light trap; 5 adult, sex indet., ALG00B 0822, ALG01B 0822, ALG02B 0822, ALG00B 0922, ALG01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across S Europe to W Asia (Italy: N, C, S; abundant). Chorotype: Turano–European–Mediterranean.

***Egira conspicillaris* (Linnaeus, 1758)**
Figure 4D

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CONSPI00A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 29.IV.2023; M. Cicero leg.; light trap; 5 adult, sex indet., CONSPI00B 0522, CONSPI00B 0423, CONSPI01B 0423, CONSPI02B 0423, CONSPI03B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across Europe (not N Scandinavia) to SW Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic– European–Mediterranean.

***Epilecta linogrisea* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 9 adult, sex indet., LIN00A 0922, LIN01A 0922, LIN02A 0922, LIN03A 0922, LIN04A 0922, LIN05A 0922, LIN06A 0922, LIN07A 0922, LIN08A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across S and C Europe to W Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Episema glaucina* (Esper, 1789)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., GLA00A 0922, GLA01A 0922, GLA02A 0922, GLA03A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across S and C Europe to W Asia (Italy: N, C, S; widespread). Chorotype: Turano–European–Mediterranean.

***Eublemma purpurina* (Denis & Schiffermüller, 1775)**
Figure 4B

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PURP00B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe, especially W Europe (Spain and S England) across S France and S and C Italy to the Balkan Peninsula. (Italy: N, C; S; widespread). Chorotype: European

***Euplagia quadripunctaria* (Poda, 1761)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., QUAD00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to C and S Europe to the Near East. (Italy: N, C; S; widespread). Chorotype: C Asiatic–European.

***Euplexia lucipara* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 29.IV.2023; M. Cicero leg.; light trap; 2 adult, sex indet., LUCI00B 0522, LUCI00B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. The Maghreb across Europe and parts of Asia to Japan. (Italy: N, C, S; widespread). Chorotype: Holarctic.

***Harpyia milhauseri* (Fabricius, 1775)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 22.V.2022, 19.VII.2023; M. Cicero leg.; light trap; 2 adult, sex indet., MILH00B 0522, MILH00B 0722.

Identification. Individuals were identified by the patterns on the wings.

Distribution. the moth occurs in Europe and parts of Western Asia (Italy: N, C; S; scarce). Chorotype: Turano–European–Mediterranean.

***Hecatera bicolorata* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 1 adult, sex indet., BICOL00B 0422.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain through C Europe to E Asia. (Italy: N, C, S; widespread). Chorotype: Holoarctic and Palearctic.

***Helicoverpa armigera* (Hubner, 1808)**
Figure 2E

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., ARMI00B 0922, ARMI01B 0922, ARMI02B 0922, ARMI03B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. C and S Europe, temperate Asia, and Africa (Italy: N, C, S; widespread). Chorotype: C Asiatic–Europe–Mediterranean.

***Herminia tarsipennalis* (Treitschke, 1835)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., TARSIP00B 0922, TARSIP01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe (not C and N Scandinavia) and in temperate Asia to the Pacific. (Italy: N, C; scarce). Chorotype: Asiatic–European.

***Hoplodrina ambigua* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., AMBI00A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., AMBI00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across Europe (except in N) to Asia. (Italy: N, C, S; widespread). Chorotype: Turano–European–Mediterranean.

***Hypena lividalis* (Hubner, 1796)**

Figure 2C

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., LIV00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Palaeotropical–subtropical (especially Africa). In Europe, this species occurs in the Mediterranean area. (Italy: N, C; S; widespread). Chorotype: Paleotropical.

***Katha depressa* (Esper, 1787)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.VII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., DEPRE00A 0722.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain to E Asia. (Italy: N, S; scarce). Chorotype: C Asiatic–European.

***Lacanobia w-latinum* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022; M. Cicero leg.; light trap; 4 adult, sex indet., WLAT00A 0522, WLAT01A 0522, WLAT02A 0522, WLAT03A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across S and C Europe to Western Asia (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Lamprosticta culta* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CUL00A 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across S Europe to temperate Asia. (Italy: N, C, S; abundant). Chorotype: Turano–European.

***Leucania comma* (Linnaeus, 1761)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 3 adult, sex indet., COMM00B 0922, COMM01B 0922, COMM02B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe (except in S areas) and temperate Asia. (Italy: N; localized). Chorotype: Sibero-European.

***Leucania putrescens* (Hubner, 1824)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PUTRE00A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 3 adult, sex indet., PUTRE00B 1022, PUTRE01B 1022, PUTRE02B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. It occurs in S Europe, N Africa, and parts of W Asia. (Italy: C, S; localized diffusion). Chorotype: Turano–Mediterranean.

***Lithosia quadra* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.VII.2022; M. Cicero leg.; light trap; 4 adult, sex indet., QUAD00A 0722, QUAD01A 0722, QUAD02A 0722, QUAD03A 0722 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022, 19.VII.2022; M. Cicero leg.; light trap; 3 adult, sex indet., QUAD00B 0922, QUAD00B 0722, QUAD01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Iberian Peninsula to E Asia. (Italy: N, C, S; scarce). Chorotype: C Asiatic–European

***Luperina dumerilii* (Duponchel, 1826)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., DUME00A 0922, DUME00A 240922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Common in NE Mediterranean (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Lycophotia erythrina* (Herrich-Schaffer, 1852)**
Figure 3I

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022, 25.VI.2022; M. Cicero leg.; light trap; 2 adult, sex indet., ERY00A 0522, ERY00A 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across S and C Europe to W Asia. (Italy: N, C and Sardinia, scarce). Chorotype: W Mediterranean.

***Lymantria dispar* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., DISP00A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 30.VII.2022; M. Cicero leg.; light trap; 1 adult, sex indet., DISP00B 0722.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across Europe and Asia to Japan. (Italy: N, C; S; widespread). Chorotype: Holarctic.

***Macdunnoughia confusa* (Stephens, 1850)**
Figure 4A

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022. M. Cicero leg.; light trap; 1 adult, sex indet., CONF00B 040522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Across Europe and the Middle Asia to Japan (Italy: N, C, S; widespread). Chorotype: C Asiatic–European.

***Mesapamea secalis* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., SECA00A 240922, SECA00A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022, 5.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., SECA00B 240922, SECA01B 240922, SECA00B 0922, SECA01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across Europe to parts of Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Miltochrista miniata* (Forster, 1771)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., MIN00B 0922, MIN01B 0922, MIN02B 0922, MIN03B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain across C and S Europe to temperate Asia (Italy: N, C, S; spread). Chorotype: C Asiatic–European.

***Mniotype satura* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SAT00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain across mainly C and N Europe to E Asia; scarce and only local in mountains of S Europe. (Italy: N, C; abundant). Chorotype: Sibero-European.

***Mniotype solieri* (Boisduval, 1840)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SOL00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain across the S Europe. (Italy: N, C, S; abundant). Chorotype: Mediterranean.

***Moma alpium* (Osbeck, 1778)**
Figure 4E

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., MOM00B 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe (excluding far north) and temperate Asia to Japan. (Italy: N, C; rare). Chorotype: Asiatic–European.

***Mythimna albipuncta* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 15.X.2022, 4.V.2022; M. Cicero leg.; light trap; 3 adult, sex indet., ALBI00A 0922, ALBI00A 1022, ALBI00A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VII.2022, 15.X.2022, 4.V.2022, 24.09.2022, 29.IV.2023; M. Cicero leg.; light trap; 10 adult, sex indet., ALBI00B 0722, ALBI00B 1022, ALBI00B 1022, ALBI00B 0522, ALBI01B 0522, ALBI02B 0522, ALBI03B 0522, ALBI00B 0922, ALBI01B 0922, ALBI00B 0423, ALBI01B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across Europe (absent in N) to the Altai. (Italy: N, C, S; widespread). Chorotype: European–Mediterranean.

***Mythimna ferrago* (Fabricius, 1787)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 19.VIII.2022; M. Cicero leg.; light trap; 12 adult, sex indet., FERR00A 0922, FERR01A 0922, FERR02A 0922, FERR03A 0922, FERR04A 0922, FERR05A 0922 FERR06A 0922, FERR07A 0922, FERR08A 0922, FERR00A 0822, FERR01A 0822, FERR02A 0822 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022, 19.VIII.2022; M. Cicero leg.; light trap; 2 adult, sex indet., FERR00B 0822, FERR00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Morocco across large parts of non-polar Europe and temperate Asia to the Altai. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European– Mediterranean.

***Mythimna l-album* (Linnaeus, 1767)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 15.X.2022, 24.IX.2022; M. Cicero leg.; light trap; 4 adult, sex indet., L-ALB00A 0922, L-ALB00A 1022, L-ALB00A 241022, L-ALB01A 24102 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022, 24.IX.2022; M. Cicero leg.; light trap; 3 adult, sex indet., L-ALB00B 1022, L-ALB00B 0922, L-ALB01B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in S Europe and extends in C Europe approximately to the northern edge of the medium high mountains. In addition, it is found from NW Africa to C Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European–Mediterranean.

***Mythimna riparia* (Boisduval, 1829)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., RIP00A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 3 adult, sex indet., RIP00B 0922, RIP01B 0922, RIP02B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Portugal across the European Mediterranean to Turkey and the Near East. (Italy: C, S; localized diffusion). Chorotype: Turano–European.

Mythimna sicula (Treitschke, 1835)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; 22.V.2022, 25.06.2022, 5.09.2022; M. Cicero leg.; light trap; 16 adult, sex indet., SICU00A 0522, SICU01A 0522, SICU02A 0522, SICU03A 0522, SICU00A 220522, SICU00A 0622, SICU01A 0622, SICU02A 0622, SICU00A 0922, SICU01A 0922, SICU02A 0922, SICU03A 0922, SICU04A 0922, SICU05A 0922, SICU06A 0922, SICU07A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Parts of Europe (especially in S), the Near East and probably N Africa (Italy: N, C, S; widespread). Chorotype: Turano–Mediterranean.

Mythimna turca (Linnaeus, 1761)

New records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022; M. Cicero leg.; light trap; 1 adult, sex indet., TUR00B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Locally in Europe (except the extreme N and S), as well as in temperate Asia to Japan. (Italy: N; scarce). Chorotype: Asiatic–European

Mythimna unipuncta (Haworth, 1809)

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022, 24.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., UNIP00B 1022, UNIP00B 241022, UNIP01B 241022, UNIP02B 241022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Tropical and subtropical Americas, Africa, and Western Asia. In Europe, only native in the Mediterranean area. (Italy: N, C, S; widespread). Chorotype: Holarctic.

Noctua comes (Hubner, 1813)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 15.X.2022; M. Cicero leg.; light trap; 3 adult, sex indet., COME00A 1022, COME01A 1022, COME02A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.10.2022, 24.IX.2022, 24.X.2022; M. Cicero leg.; light trap; 15 adult, sex indet., COME00B 1022, COME01B 1022, COME02B 1022, COME03B 1022, COME04B 1022, COME05B 1022, COME06B 1022, COME07B 1022, COME08B 1022, COME09B 1022, COME10B 1022, COME00B 0922, COME01B 0922, COME00B 1022, COME01B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread and common in Europe. It also occurs in W Asia and N Africa. (Italy: N, C, S; widespread). Chorotype: Palearctic.

Noctua fimbriata (Schreber, 1759)

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., FIMBR00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to W Asia (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

Noctua janthina (Denis & Schiffermüller, 1775)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 5.IX.2022; M. Cicero leg.; light trap; 3 adult, sex indet., JANT00A 240922, JANT00A 0922, JANT01A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VII.2022, 19.VIII.2022, 5.IX.2022, 24.IX.2022, 15.X.2022; M. Cicero leg.; light trap; 25 adult, sex indet., JANT00B 0722, JANT00B 0822, JANT00B 0922, JANT01B 0922, JANT02B 0922, JANT00B 240922, JANT01B 240922, JANT02B 240922, JANT03B 240922, JANT04B 240922, JANT05B 240922, JANT06B 240922, JANT00B 1022, JANT01B 1022, JANT02B 1022, JANT03B 1022, JANT04B 1022, JANT05B 1022, JANT06B 1022, JANT07B 1022, JANT08B 1022, JANT09B 1022, JANT10B 1022, JANT11B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe to W Asia (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Noctua pronuba* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 15.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., PRON00A 0922, PRON00A 1022, PRON01A 1022, PRON02A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 22.V.2022, 24.IX.2022, 24.X.2022, 15.X.2022; M. Cicero leg.; light trap; 10 adult, sex indet., PRON00B 0522, PRON00 0922, PRON01B 0922, PRON02B 0922, PRON03B 0922, PRON00B 241022, PRON01B 241022, PRON00B 1022, PRON01B 1022, PRON02B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe, Asia, to N India and Siberia. It was introduced to N America. (Italy: N, C, S; widespread). Chorotype: Holarctic.

***Noctua tirrenica* (Biebinger, Speidel & Hanigk, 1983)**
Figure 2R

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 5.IX.2022; M. Cicero leg.; light trap; 5 adult, sex indet., TIRR00A 240922, TIRR01A 240922, TIRR02A 240922, TIRR00A 0922, TIRR01A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022, 15.X.2022; M. Cicero leg.; light trap; 4 adult, sex indet., TIRR00 0922, TIRR01B 0922, TIRR02B 0922, TIRR00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to Turkey. (Italy: N, C, S; localized diffusion). Chorotype: Turano–Mediterranean

***Ochropleura plecta* (Linnaeus, 1761)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 4.V.2022, 19.VIII.2022, 24.IX.2022, 29.IV.2023; M. Cicero leg.; light trap; 4 adult, sex indet., PLE00 0522, PLE00 0822, PLE00 0922, PLE00 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe, N America, Asia, and N Africa. (Italy: N, C, localized in S). Chorotype: Holarctic.

***Orthosia cruda* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 1 adult, sex indet., CRU00 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Iberian Peninsula to W Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European.

***Orthosia cerasi* (Fabricius, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 6 adult, sex indet., CERA00A 0522, CERA01A 0522, CERA02A 0522, CERA03A 0522, CERA04A 0522, CERA05A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in temperate Europe and Asia. (Italy: N, C, S; widespread). Chorotype: C Asiatic–European.

***Orthosia gothica* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 7 adult, sex indet., GOTH00A 0522, GOTH01A 0522, GOTH02A 0522, GOTH03A 0522, GOTH04A 0522, GOTH05A 0522, GOTH06A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 1 adult, sex indet., GOTH00B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain to Japan; also above Arctic Circle. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Pachetra sagittigera* (Hufnagel, 1766)**
Figure 2Q

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 16 adult, sex indet., SAGI00A 0522, SAGI01A 0522, SAGI02A 0522, SAGI03A 0522, SAGI04A 0522, SAGI05A 0522, SAGI06A 0522, SAGI07A 0522, SAGI08A 0522, SAGI09A 0522, SAGI10A 0522, SAGI11A 0522, SAGI12A 0522, SAGI13A 0522, SAGI14A 0522, SAGI15A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.;

22.V.2022; M. Cicero leg.; light trap; 2 adult, sex indet., SAGI00B 0522, SAGI01B 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe (except in far north). (Italy: N, C, S; widespread). Chorotype: Holarctic and Palearctic.

Paracolax tristalis (Fabricius, 1794)

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 3 adult, sex indet., TRIST00B 0922, TRIST01B 0922, TRIST02B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe (not in far north) to E Asia (Japan). (Italy: N, C, S; abundant). Chorotype: C Asiatic–European.

Peridea anceps (Goeze, 1781)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 4.V.2022; M. Cicero leg.; light trap; 2 adult, sex indet., ANC00A 0522, ANC00A 0522 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 29.IV.2023; M. Cicero leg.; light trap; 1 adult, sex indet., ANC00B 0423.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across much of Europe and the N Turkey to C Russia (Italy: N, C; S; widespread). Chorotype: Turano–European–Mediterranean.

Phlogophora meticulosa (Linnaeus, 1758)

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 19.VIII.2022, 24.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., METI00B 0822, METI00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Europe. (Italy: N, C, S; widespread). Chorotype: European.

Phragmatobia fuliginosa (Linnaeus, 1758)

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44°2'58.398"N, 10°36'25.542"E; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., FULI00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across Europe to E Asia. (Italy: N, C, S; widespread). Chorotype: Holarctic.

Polymixis rufocincta (Geyer, 1828)

Figure 2P

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 19.XI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., RUF00A 1122.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain across Europe (except N). (Italy: N, C, S; abundant). Chorotype: S European.

Polymixis serpentina (Treitschke, 1825)

Figure 2O

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 24.IX.2022; M. Cicero leg.; light trap; 9 adult, sex indet., SERP00A 0922, SERP00A 240922, SERP01A 240922, SERP02A 240922, SERP03A 240922, SERP04A 240922, SERP05A 240922, SERP06A 240922, SERP07A 240922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SERP00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Spain across S Europe. (Italy: C, S; abundant). Chorotype: Mediterranean.

Pseudoips prasinana (Linnaeus, 1758)

Figure 4C

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 24.IX.2022; M. Cicero leg.; light trap; 9 adult, sex indet., SERP00A 0922, SERP00A 240922, SERP01A 240922, SERP02A 240922, SERP03A 240922, SERP04A 240922, SERP05A 240922, SERP06A 240922, SERP07A 240922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SERP00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widely distributed across Europe, to Japan. (Italy: N, C; S; widespread). Chorotype: C Asiatic–European.

***Pyrrhia umbra* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.X.2022; M. Cicero leg.; light trap; 1 adult, sex indet., UMB00B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Most of Europe (excluding polar region) and temperate Asia to Japan. (Italy: N, C, S; widespread). Chorotype: Asiatic–European.

***Rhyparia purpurata* (Linnaeus, 1758)**
Figure 3A

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 25.VI.2022; M. Cicero leg.; light trap; 1 adult, sex indet., PURPU00A 0622.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Rare in C Europe, but more common in S (Italy: N, C, localized diffusion). Chorotype: Asiatic–European.

***Spodoptera littoralis* (Boisduval, 1833)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.X.2022; M. Cicero leg.; light trap; 2 adult, sex indet., LITT00A 1022, LITT01A 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in Old World tropics and subtropics; Canary Islands, Madeira, and S Mediterranean. (Italy: Sicily and Sardinia, scarce in the Peninsula). Chorotype: Mediterranean.

***Stilbia faillae* (Pungeler, 1918)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 2 adult, sex indet., FAILL00A 0922, FAILL01A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. across W Europe. (Italy: C, S; localized). Chorotype: Mediterranean.

***Thalpophila matura* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 7 adult, sex indet., MAT00A 0922, MAT01A 0922, MAT02A 0922, MAT03A 0922, MAT04A 0922, MAT05A 0922, MAT06A 0922 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., MAT00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in C Europe and parts of SW Asia. (Italy: N, C, S; widespread). Chorotype: Turano–European.

***Tholera decimalis* (Poda, 1761)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 8 adult, sex indet., DECIM00A 0922, DECIM01A 0922, DECIM02A 0922, DECIM03A 0922, DECIM04A 0922, DECIM05A 0922, DECIM06A 0922, DECIM07A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Iberian Peninsula to Siberia. (Italy: N, C, S; widespread). Chorotype: Sibero-European.

***Tilliacea aurago* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022, 15.X.2022; M. Cicero leg.; light trap; 7 adult, sex indet., AUR00A 0922, AUR00A 1022, AUR01A 1022, AUR02A 1022, AUR03A 1022, AUR04A 1022, AUR05A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022; M. Cicero leg.; light trap; 2 adult, sex indet., AUR00B 1022, AUR01B 1022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Europe (Italy: N, C, localized in S). Chorotype: European.

***Tilliacea sulphurago* (Denis & Schiffermüller, 1775)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., SULPH00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Parts of Europe (not in N) and temperate Asia. (Italy: N, C, localized in S). Chorotype: C Asiatic–European.

***Trigonophora flammea* (Esper, 1785)**
Figure 2L

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.X.2022, 15.X.2022; M. Cicero leg.; light trap; 17 adult, sex indet., FLAM00A 1022, FLAM01A 1022, FLAM02A 1022, FLAM03A 1022, FLAM04A 1022, FLAM05A 1022, FLAM06A 1022, FLAM07A 1022, FLAM08A 1022, FLAM09A 1022, FLAM00A 151022, FLAM01A 151022, FLAM02A 151022, FLAM03A 151022, FLAM04A 151022, FLAM05A 151022, FLAM06A 151022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 15.X.2022, 24.X.2022; M. Cicero leg.; light trap; 13 adult, sex indet., FLAM00B 1022, FLAM01B 1022, FLAM02B 1022, FLAM03B 1022, FLAM00B 241022, FLAM01B 241022, FLAM02B 241022, FLAM03B 241022, FLAM04B 241022, FLAM05B 241022, FLAM06B 241022, FLAM07B 241022, FLAM08B 241022.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Africa across Europe. (Italy: N, C, S; abundant). Chorotype: Mediterranean.

***Wittia sororcula* (Hufnagel, 1766)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 22.V.2022; M. Cicero leg.; light trap; 2 adult, sex indet., SOR00A 0522, SOR01A 0522.

Identification. Individuals were identified by the patterns on the wings.

Distribution. N Spain across much of the non-Arctic Europe to E Asia (Italy: N, C, S; widespread). Chorotype: C Asiatic–European.

***Xestia c-nigrum* (Linnaeus, 1758)**

Records. ITALY – LUCCA • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CNIG00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across most of Europe to Asia. (Italy: N, C, S; widespread). Chorotype: Holarctic.

***Xestia castanea* (Esper, 1798)**

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 6 adult, sex indet., CAST00A 0922, CAST01A 0922, CAST02A 0922, CAST03A 0922, CAST04A 0922, CAST05A 0922 • Bagni di Lucca;c44.0089, 10.5537; 200 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., CAST00B 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in C Europe. It is also found in NW Africa and parts of SW Asia. (Italy: N, C, S; abundant). Chorotype: Palearctic.

***Xestia cohaesa* (Herrich-Schaffer, 1849)**

New records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 24.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., COHA00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Mediterranean area (Italy: C, S; scarce). Chorotype: E Mediterranean.

***Xestia stigmatica* (Hubner, 1813)**
Figure 2S

Records. ITALY – LUCCA • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022; M. Cicero leg.; light trap; 1 adult, sex indet., STIG00A 0922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. Widespread in C Europe and parts of SW Asia. (Italy: N, C, S; localized). Chorotype: Asiatic–European.

***Xestia xanthographa* (Denis & Schiffermüller, 1775)**
Figure 2T

Records. ITALY – Lucca • Mt. Prato Fiorito; 44.0517, 10.6255; 850 m alt.; 5.IX.2022, 24.IX.2022, 15.X.2022; M. Cicero leg.; light trap; 15 adult, sex indet., XANT00A 0922, XANT01A 0922, XANT02A 0922, XANT03A 0922, XANT00A 240922, XANT01A 240922, XANT02A 240922, XANT03A 240922, XANT04A 240922, XANT05A 240922, XANT06A 240922, XANT07A 240922, XANT08A 240922, XANT09A 240922, XANT00A 1022 • Bagni di Lucca; 44.0089, 10.5537; 200 m alt.; 5.IX.2022, 24.IX.2022; M. Cicero leg.; light trap; 10 adult, sex indet., XANT00B 0922, XANT00B 240922, XANT01B 240922, XANT02B 240922, XANT03B 240922, XANT04B 240922, XANT05B 240922, XANT06B 240922, XANT07B 240922, XANT08B 240922.

Identification. Individuals were identified by the patterns on the wings.

Distribution. NW Africa across most of Europe to C Asia. Introduced to N America (Italy: N, C, S; widespread). Chorotype: Holarctic.

DISCUSSION

With respect to the 309 species recorded by Marini and Trentini (1986), in our survey, we found 129 species, 14 of which not previously reported, including seven belonging to the family Noctuidae and seven to the family Erebidae (Table 1). Although the new reports are more or less widespread species throughout the Italian peninsula (Parenzan and Porcelli 2006; Parenzan and Porcelli 2005), to have a more accurate understanding of the distribution of these taxa in the Tuscany area, and to better evaluate the importance of their presence there, we have compared our data with a list of species reported in GBIF (Table 1). Five species have not been reported before and two have been reported only once, while three species have fewer than 10 records.

Among the species whose historical presence has been confirmed, we have notice that some seem to show differences in flight periods, both with respect to the catches made in our study and to what is reported in the literature (Parenzan 1976; Marini and Trentini 1986; Fibiger 1997, 1993, 1990; Parenzan and Porcelli 2006). There is an apparent postponement of the flight period towards autumn, especially in the following species:

- *Apamea illyria*: adults fly from May until July/August, consistent with the latitude of the area. In the historical data (Marini and Trentini 1986) it was only sampled between the end of May and July. In 2022, the species was sampled at the end of September.
- *Apamea monoglypha*: adults appear from the end of June until the end of August. In the historical data it was only sampled until the beginning of September. In 2022, the species was sampled in mid-October.
- *Apamea sordens*: adults fly from early/mid-May to July. In historical data it was only present in these areas until June. In the second campaign (2022), the species was sampled at the end of September.
- *Noctua fimbriata*: moths fly in the summer. Historical data confirm its presence until the beginning of September. The species was caught at the end of October.
- *Deltotes pygarga*: adults fly from the end of May to July. Historical data only show catches from the end

Table 1. Newly reported noctuoid moth species from the study area and the number of records on the GBIF platform for the Tuscany region.

Newly reported species	GBIF records in Tuscany
Helicoverpa armigera (Hubner, 1808) - Noctuidae	<10
Amphipoea oculea (Linnaeus, 1761) - Noctuidae	0
Mythimna turca (Linnaeus, 1761) Noctuidae	1
Noctua tirrenica (Biebinger, Speidel & Hanigk, 1983) - Noctuidae	0
Xestia cohaesa (Herrich-Schaffer, 1849) - Noctuidae	1
Athetis hospes (Freyer, 1831) - Noctuidae	<10
Catocala conjuncta (Esper, 1787) - Erebidae	0
Catocala promissa (Denis & Schiffermüller, 1775) - Erebidae	0
Eublemma purpurina (Denis & Schiffermüller, 1775) - Erebidae	0
Hypena lividalis (Hubner, 1796) - Erebidae	<10
Diacrisia sannio (Linnaeus, 1758) - Erebidae	>5
Rhyparia purpurata (Linnaeus, 1758) - Erebidae	2
Arctia testudinaria (Geoffroy, 1785) - Erebidae	<10
Asteroscopus sphinx (Hufnagel, 1766) - Noctuidae	< 5

of May. The species was found at the beginning of May in 2002.

- *Agrotis trux*: adults are observed flying from June to August. The latest sampling for this species collected by Marini and Trentini (1986) dates to October 1, 1980. In 2022, it was sampled in mid-October.
- *Hoplodrina ambigua*: the moths occur most often in two generations between May and September, but in higher altitudes often only in one generation between late June and August. In the historical data, the later samplings occur in early September. The species was captured in late October.

Even considering the higher sampling effort in the baseline period (sampling over about 3 years), this preliminary data still suggests a decrease in the number of species present in the area, not offset by the new reports, and an apparently substantial changes in the local lepidopteran population. Indeed, of the 187 species previously sampled in the reference period and not found in the current sampling, 26 were captured in all three years, and the fact that they were not found could be indicative of a change in progress.

Further studies will be needed to understand, how much these communities have altered their composition with respect to the past, and why these patterns might be emerging.

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ADDITIONAL INFORMATION

Conflict of Interest

The authors declare that no competing interests exist.

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Author contributions

Conceptualization: MC, AB. Data curation: MC. Formal analysis: MC. Funding acquisition: AB. Investigation: MC. Methodology: MC, AB. Project administration: AB. Resources: AB. Supervision: AB. Validation: MM, SG, AB. Visualization: MC. Writing – original draft: MC. Writing – review and editing: AB, SG, MM.

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Data availability

All data that support the findings of this study are available in the main text.

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